REMARKS

Claims 1-27 are pending in the present application. In the Office Action mailed April 16, 2008, the Examiner rejected claims 1-27 under 35 U.S.C. §103(a) as being unpatentable over Gordon et al. (USP 5,661,774) in view of Rosenthal (USP 4,017,192).

As a brief history, claims 1, 8, 16, 19, and 24 were finally rejected under 35 U.S.C. §102(b) as being anticipated by Gordon et al. *Office Action*, 04/19/2007, pg. 2. A Notice of Appeal was submitted, and an Appeal Brief was filed on January 21, 2008. However, while the Appeal was pending, Applicant was notified of the Rosenthal reference via a foreign patent office. Even though Applicant did not believe the reference to be analogous art, Applicant took a proactive and conservative approach, and requested withdrawal of the application from appeal and submitted a request for continued application (RCE) of the pending application on March 26, 2008 under MPEP §706.07(h). Per MPEP §609(h), however, Applicant reminds the Examiner that "[t]he filing of an information disclosure statement shall not be construed to be an admission that the information cited in the statement is, or is considered to be, material to patentability as defined in § 1.56(b)." Thus, in withdrawing the appeal and submitting the RCE, Applicant in no way acceded to the materiality of Rosenthal. Indeed, it is noted that after more than six years of prosecution, including numerous office actions, and two Pre-Appeal Conferences, nowhere did the Rosenthal reference previously surface – providing strong evidence that Rosenthal is not material to patentability and is not in the field of endeavor with which Applicant was concerned. Nevertheless, claims 1, 8, 16, 19, and 24 were rejected under 35 U.S.C. §103(a) over Gordon et al. in view of Rosenthal.

In the rejections, the Examiner relied on Gordon et al. for numerous elements of the claimed subject matter, but has now admitted that "Gordon et al. do[es] not explicitly teach a hub structure." *Office Action,* 04/16/08, pg. 3. The Examiner then relied on Rosenthal for that deficiency after stating that Rosenthal is "in the same field of endeavor." *Id.,* pgs. 3-4.

Gordon et al. does not teach or suggest the claim elements as alleged by the Examiner. Further, Rosenthal is not analogous art per the requirement of MPEP §2141.01(a)(I), as Rosenthal is not in the same field of endeavor, and Rosenthal is not reasonably pertinent to the particular problem with which the inventor was concerned. Thus, Gordon et al. does not teach the claimed subject matter, and reliance on Rosenthal is improper as Rosenthal is inapplicable to CT-related material. Because Rosenthal is not analogous art, the Examiner has relied on improper hindsight reconstruction in combining Rosenthal with Gordon et al.

Claim 1 calls for, in part, a CT system that includes an HF electromagnetic energy source, a generator configured to energize the HF electromagnetic energy source, a hub, and a

number of HF electromagnetic energy filters in a spoked relationship with the hub. Claim 8 calls for, in part, a controller configured to acquire CT imaging data at more than one chromatic energy state, the controller having instructions to energize an HF electromagnetic energy source, position only a first portion of a filtering apparatus between the subject and the HF electromagnetic energy source along a path of rotation of a hub of the filtering apparatus in a spoked relationship with the first portion, and position only a second portion of the filtering apparatus between the subject and the HF electromagnetic energy source along the path of rotation of the hub in a spoked relationship with the second portion. Claim 16 calls for, in part, a method of acquiring imaging data at more than one chromatic energy that includes projecting a first beam of electromagnetic energy, positioning a first filter in a spoked relationship with the first filter, projecting a second beam of electromagnetic energy, and positioning a second filter in a spoked relationship with the second filter. Claim 19 calls for, in part, a computer readable storage medium having a computer program stored thereon and representing a set of instructions that when executed by a computer causes the computer to energize an HF electromagnetic energy source to a first voltage, rotate a hub to position a first filter, in a spoked relationship with the hub, energize the HF electromagnetic energy source to a second voltage, rotate the hub and position a second filter, in a spoked relationship with the hub, between the HF electromagnetic energy source and the subject. Claim 24 calls for a filtering apparatus for a radiation emitting imaging system, the filtering apparatus including a hub, a first filter connected to the hub, and a second filter connected to the hub, wherein the first and second filters are in a spoked relationship with the hub.

In relying on Gordon et al., the Examiner stated that Gordon et al. teaches, "a filter 262, divided into six thin and thick segments alternately disposed on the metal disk (col. 13, lines 24-39)." *Id.* The Examiner alleged that the "filtering segments in Gordon are in a spoked relationship with respect to the center," and the Examiner concluded, "[t]he segments themselves are the spokes extending radially from the center of the disk to a rim." *Id.* Thus, the Examiner acknowledged that Gordon et al. teaches a disk filter having six thin and thick segments. However, the Examiner incorrectly concluded that the thin and thick segments are "disposed on" the metal disk, and the Examiner incorrectly concluded that the filters are "spokes extending radially from the center of the disk to a rim."

Gordon et al. teaches "an improved power supply that is useful in connection with dual energy X-ray systems." *Gordon et al.,* Col. 1, lns. 13-16. "Filter 262 is a preferably flat disk that is disposed proximal to X-ray tube 128 for rotation within the beam generated by X-ray tube 128." *Id.,* Col. 13, lns. 15-17. Filter 262 is a flat metal disk with six pie shaped segments, with three of the segments 270 formed from relatively thick material, and three segments 272 formed

from relatively thin material. *Id.,* Col. 13, lns. 23-33. "Segments 270 and 272 are alternately disposed so that each of the thick segments 270 is adjacent to two of the thinner segments 272, and vice versa." *Id.,* Col. 13, lns. 37-39. Filter 262 rotates to dispose segments 270 and 272 alternately in the beam. *Id.,* Col. 13, lns. 40-44.

The disk filters of Gordon et al. are not in a spoked relationship to one another as called for in the claims. Rather, the filters of Gordon et al. are flat segments 270, 272 of filter 262. Figures 5, 7, and 9 illustrate filter 262, wherein radial lines of delineation segment filter 262 into flat segments 270, 272. Supporting text, beginning at Col. 13, ln. 8 of Gordon et al., is presented below in whole with emphasis added, to fully elucidate that which is taught by Gordon et al.:

> For the preferred dual energy baggage scanner shown in FIGS. 1-3, as seen in FIG. 5, in order to further enhance the disparity between the energy levels of high and low energy beams passing through the baggage being scanned, the waveform generator 186 preferably includes a motor 260 for rotating a filter 262, a rotary shaft encoder 264, and a digital-to-analog converter 268. Filter 262 is a preferably flat disk that is disposed proximal to X-ray tube 128 for rotation within the beam generated by X-ray tube 128. Rotary shaft encoder 264 senses the angular position of filter 262 and generates a digital signal representative thereof, and applies this digital signal to digital-to-analog converter 268. The latter generates an analog signal representative of the digital signal generated by encoder 264 and applies the analog signal to amplifier 230 of power supply 200.
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> In the illustrated embodiment, filter 262 is a flat metal disk that is divided up into six equally sized "pie shaped" segments, although the number of segments can vary. Three of the segments 270 are formed from relatively thick sheets 128 of dense material (e.g., 0.6 mm of copper) that are sufficiently thick so as to absorb a portion of the low energy photons generated by X-ray tube 128 and are sufficiently thin so as to transmit substantially all of the high energy photons generated by tube 128. The three remaining segments 272 are formed from relatively thin sheets of light material (e.g., 0.1 mm of aluminum) and are sufficiently thinner than segments 270 so that segments 272 transmit a higher percentage of the low energy photons generated by tube 128. Segments 270 and 272 are alternately disposed so that each of the thick segments 270 is adjacent two of the thinner segments 272, and vice versa.
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> In operation, filter 262 rotates under the control of motor 260, and analog-to-digital converter 268 generates a periodically varying analog signal representative of the angular orientation of filter 262, and specifically indicating whether a segment 270 or a segment 272 is disposed in the beam 124. In the illustrated embodiment, converter 268 preferably generates a sinusoidal signal characterized by frequency f_1, where f_1 is equal to three times the rotational frequency of filter 262. As stated above, the rate or frequency f_1 of the signal generated by converter 268 and applied to amplifier 230 controls the periodic rate at which the X-ray beam changes between high and low energy levels. Since the signal generated by converter 268 is synchronized with the rotation of filter 262, waveform generator 186 insures that the periodic rate of change of the X-ray

> beam between the two energy levels is synchronized with the rotation of filter 262.
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> In the illustrated embodiment, filter 262 preferably rotates 120° for every oscillation of the X-ray beam, and the initial position of filter 262 is adjusted so that one of the thicker sections 270 is disposed in the beam between the tube 128 and the baggage 112 (shown in FIG. 1) when tube 128 generates the high energy beam (i.e., when the voltage level between node A and system ground equals V_1), and one of the thinner sections 272 is disposed in the beam when tube 128 generates the low energy beam (i.e., when the voltage level between node A and system ground equals V_2). So filter 262 removes a portion of the low energy photons from the high energy beam and filter 262 removes few if any of the low energy photons from the low energy beam. So filter 262 acts to increase the disparity between the energy levels of the high and low energy beams generated by tube 128.
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> In the preferred embodiment, the rotation of filter 262 (and therefore the oscillation of the X-ray beam) is synchronized to the rotation of rotating disk 124 of the baggage scanner (shown in FIGS. 1-3), so that the X-ray beam periodically changes between the high and low energy levels and back to the high energy level (one cycle or period of the waveform) N times for every 360° rotation of disk 124, where N is an integer. In one preferred embodiment N is equal to 600, although this number can clearly vary. It will be appreciated that N low energy projections and N high energy projections will be thereby provided for each 360° rotation of disk 124. *Gordon et al.,* Col. 13, ln. 8 through Col. 14, ln. 16.

Accordingly, Gordon et al. teaches a disk-shaped filter 262 having alternating filter segments 270 and 272. The filter 262 is positioned between the x-ray source and the object to be scanned. The filter rotation is synchronized with rotation of the gantry. As stated, filter 262 is illustrated in Figs. 5, 7, and 9. As such, filter 262 includes alternating flat segments 270, 272 in a disk shape, and filter 262 is rotated such that flat segments 270 and 272 alternate between the x-ray source and an object to be scanned.

Clearly Gordon et al. does not teach filtering segments that "are in a spoked relationship with respect to the center" as alleged by the Examiner. The filter of Gordon et al. does not have segments in a spoked arrangement. Rather, Gordon teaches a flat disk filter, and one skilled in the art will recognize that a disk is not a spoked wheel, and that there are not filters "disposed on" the disk. There are no "spokes" extending radially to a rim, and the metal disk is not in a spoked relationship with anything. Thus the elements of the claims are neither expressly nor inherently described by Gordon et al.

Regarding Rosenthal, the Examiner alleged that Rosenthal is in "the same field of endeavor" and relied on Rosenthal solely for teaching a hub structure.

Rosenthal teaches a technique for automatic detection of abnormalities that includes transmittance or reflectance of light over a number of wavelengths. *Rosenthal,* Abstract.

Referring to Figs. 1 and 2, in infrared lamp 12 "directs wideband light through a lens 14 to illuminate a focused area on a sample drawer 16." *Id.,* Col. 2, lns. 50-52. "A multiple filter assembly 20 in the form of a paddlewheel is mounted for rotation about an axis perpendicular to and spaced from the light path defined between the lamp 12 and the illuminated area on the sample drawer 16." *Id.,* lns. 57-60. "[T]hree narrow bandwidth plate-shaped optical interference filters 22 are mounted on a hexagonal axle 24." *Id.,* lns. 62-64. "Opaque vanes can be attached to the ends of the filter to intermittently obstruct the light path." *Id.,* Col. 3, lns. 3-4.

Thus, Rosenthal teaches projection of a wideband infrared light through narrow bandwidth optical filters. Clearly, Rosenthal is not in the same field of endeavor and is thus not analogous prior art. Thus, the Examiner has used improper hindsight reasoning in applying Rosenthal in the pending rejections.

MPEP §2145(X)(A) states that "any judgement on obviousness is in a sense necessarily a reconstruction based on hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the claimed invention was made and does not include knowledge gleaned only from applicant's disclosure, such a reconstruction is proper." *In re McLaughlin* 443 F.2d 1392, 1395, 170 USPQ 209, 212 (CCPA 1971).

The Examiner alleged that one skilled in the art would be motivated to combine the teachings of the references in such a way as to render the claims of the present invention obvious. Applicant respectfully disagrees and submits that Rosenthal applies to an entirely different field of art, and thus may not be properly combined with Gordon et al. Rosenthal is directed toward use of optical wavelengths, and solves a problem related to detecting abnormalities in biomedical specimens by directing an infrared light source toward the specimen. Applicant's invention, on the other hand, is directed toward use of a high-frequency electromagnetic radiation source. High-energy x-rays are directed toward a subject, and data acquired is used to reconstruct an image of the subject. Clearly the two systems are in no way related to the same field of endeavor. The fact that the Examiner has not cited this reference over the last six years strongly supports this view. Rosenthal is in fact not analogous to the claimed subject matter and is therefore not available as a §103 reference in rejecting the claims.

MPEP §2141.01(a)(I) states "to rely on a reference under 35 U.S.C. 103, it must be analogous prior art." Specifically, "[i]n order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

Rosenthal is clearly not in the field of Applicant's endeavor and is not reasonably pertinent to the problem with which the inventor was concerned. As stated, Rosenthal is related to projection of a wideband infrared light through narrow bandwidth optical filters. And, although the filter of Rosenthal may appear to have similar structure to the claimed invention, it is not reasonable to assume that one in the field of CT, or x-ray imaging in general, would look to a reference that teaches a stationary system using an infrared light source. As evidence, one need look no further than the file history of this case. Clearly, the Examiner would have found this reference, if it was material, during any one of the many searches conducted during this lengthy prosecution. That is, it must be noted that this case has had five Office Actions, two Pre-Appeal Brief Conference Requests, one of which was favorable and one of which was not, an actual Notice of Allowance and Issue Fee payment, an Advisory Action, and Briefing for Appeal to the BPAI. The very fact that this reference was never found and cited by the Examiner and the Applicant clearly shows that it is nonanalogous art.

In sum, Rosenthal is not analogous art and is not reasonably pertinent to the particular problem with which the inventor was concerned.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is, once again, or still, in condition for allowance. As a result, Applicant respectfully requests timely issuance of a second Notice of Allowance for claims 1-27.

Applicant appreciates the Examiner's consideration of these Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,

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